



U.S. Department
of Transportation

Federal Aviation
Administration

800 Independence Ave., S.W.
Washington, D.C. 20591

FCC MAIL ROOM

NOV 17 1998

NOV 19 1998

Ms. Magalie Roman Salas
Office of the Secretary
Federal Communications Commission
1919 M Street, NW. Room 222
Washington, DC 20554

RECEIVED

Dear Ms. Salas:

Over the past several years, the Federal Aviation Administration (FAA) has been participating in various domestic and international forums to develop a solution to the growing spectrum congestion in the aeronautical mobile (route) communications spectrum from 118-137 MHz. Based on airspace user needs, avionics manufacturers capabilities, and Government regulatory requirements, in May, the FAA made an investment decision to implement a new digital communications system in this frequency band. This new system is based on time division multiple access technology and will be implemented beginning in 2002.

Recent testing between the new digital technology and the current double sideband-amplitude modulated system have shown that the current system is susceptible to interference caused by normal operation of the digital system. Because of this, it is clear that in order to support the transition to the new digital system, a dedicated "subband" is needed in which to begin implementation. Due to the current limited usage of 136-137 MHz, the desired spectrum to use to begin this transition is the 136-137 MHz segment of the 118-137 MHz band.

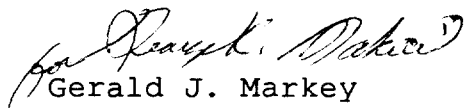
We have enclosed a Petition for Rulemaking to allow use of the 136.000-136.475 MHz in addition to 136.525, 136.625, 136.725 and 136.825 MHz for the future requirements of civil aviation air traffic control. Failure to allow such use may result in the inability of civil aviation to transition to this new digital system.

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If you require any additional information, please contact Mr. Don Willis, Manager, Spectrum Planning and International Division, at (202) 267-9715.


Gerald J. Markey

Enclosure

Before The
Federal Communications Commission
Washington, D.C., 20554

NOV 19 1998

September 30, 1998

In the Matter of the Petition of

The Federal Aviation Administration)
)
For Amendment of Part 87 of the)
Commission's Rules Concerning)
Allocation of the 136-137 MHz)
Segment of the Aeronautical Mobile)
(Route) Service Band)

PETITION FOR RULEMAKING

Pursuant to Section 1.401 of the Commission's Rules, the Federal Aviation Administration (FAA) hereby petitions the Commission to revise Part 87 to add a Government allocation to the 136-137 MHz segment of the 118-137 MHz Aeronautical Mobile (Route) Service (AM(R)S) frequency band, which is used to support critical safety communications services to civil aviation, and to adopt a revised allotment plan for that segment. The FAA seeks this change in order to satisfy the growing air traffic control communications of civil aviation and to allow for a more flexible and efficient use of this scarce radio spectrum. In particular, the flexible use of this radio spectrum is required in order to provide a sufficient "subband" so that current air/ground communications will not receive interference from the new digital system during transition to the future digital air/ground communications system. This system was developed within the International Civil Aviation Organization (ICAO) and has been selected by the FAA to satisfy the forecast requirements of civil aviation.

I. Summary

In 1990, the Commission issued a Report and Order amending Parts 2 and 87 of the Commission's Rules, Title 47 of the Code of Federal Regulations (47CFR) Parts 2 and 87, to permit stations in the aviation services to use frequencies in the 136-137 MHz band in support of the AM(R)S. This action was taken to conform the Commission's Rules with the Final Acts of the 1979 World Administrative Radio Conference (WARC-79), the Final Acts of the 1987 World Administrative Radio Conference for the Mobile Services (WARC Mod-87), and to address two petitions (one filed by Aeronautical Radio Incorporated and the other by the American Petroleum Institute).

The Commission amended Parts 2 and 87 of the Rules to make 35 channels in the 136-137 MHz band available for assignment to aeronautical stations. Of these, 15 channels were "allocated for general aviation uses such as AWOS, ATIS, control tower and advisory communications." The FAA was authorized to use these channels on a shared basis for such general aviation purposes. In addition, five channels were temporarily held in reserve for future general aviation services.

There is a long history of spectrum congestion in the 118-136 MHz band due to increasing air traffic control communications requirements which cause frequency assignments in this band to grow approximately 4% per year. In the past, this spectrum congestion has been resolved by decreasing the bandwidth of the communications channel...from 200 kHz to 100 kHz; from 100 kHz to 50 kHz; and from 50 kHz to the present 25 kHz. Because of the need for increased functionalities which can be realized by use of digital techniques, as well as the improved performance resulting from the use of the new modulation method, the FAA does not believe that it is prudent to advocate a further "channel splitting" of the current double sideband-amplitude modulated system.

Due to increasing spectrum congestion and FAA projections that it would be difficult to accommodate the increasing need for air traffic control communications channels by 2002, the U.S. developed a position at the 1990 ICAO Communications/Meteorology/Operations Divisional Meeting to study the growing spectrum congestion in the 118-137 MHz band worldwide and make system improvement recommendations. After several years of comprehensive study within the RTCA, Incorporated forum of airspace users, equipment manufacturers, Government agencies, and other interested parties, a recommendation for development and implementation of a future air/ground communications system based on time division multiple access techniques was recommended. Coordinated parallel studies within the ICAO Aeronautical Mobile Communication Panel reached a similar conclusion.

As a result of the above studies, the 1995 meeting of the ICAO Communications/Operations Divisional Meeting adopted a recommendation to expedite development of the U.S.-developed time division multiple access system to relieve growing spectrum congestion in the 118-137 MHz band.

On May 5, 1998, the FAA made an investment decision to replace the current double sideband-amplitude modulated air/ground voice communications system, which operates in the 118-137 MHz band, with the modern digital system using time division multiple access technology. This new system provides four independent voice and/or data link circuits on each 25 kHz radio frequency channel. This system design is defined in ICAO as VHF digital link (VDL) Mode 3 (VDL Mode 3). A new ICAO developed 25 kHz data link-only system is defined as VDL Mode 2.

The future system must be accommodated in the current spectrum allocation, 118-137 MHz, for the Aeronautical Mobile (Route) Service. Because of incompatibilities between the current system and the new digital technology, a "subband" within the 118-137 MHz band is required in which to implement the time division multiple access

system. Because of congestion in this band, it may not be possible to accommodate the need for a suitable "subband" for the new system while ensuring interference-free operation of the current system.

II. History of 136-137 MHz Band Allocation

On November 21, 1988, Aeronautical Radio Incorporated, petitioned the Commission for a rulemaking to establish appropriate aviation rules in Part 87 to permit aeronautical communications in the 136-137 MHz band, which had previously been allocated for various space-to-earth communications. On June 28, 1989, the Commission released an NPRM proposing such an amendment. Other petitions and various comments and replies were filed in 1989 and 1990, and the Commission released its Report and Order on July 5, 1990.

This Report and Order provides, "fifteen channels for general aviation uses such as Automated Weather Observation Systems (AWOS), Automatic Terminal Information Systems (ATIS)...and advisory communications." AWOS are systems which automatically observe the weather (without a human weather observer) and then continuously broadcast computer-generated voice reports of weather variables (ceiling, visibility, wind direction and speed, temperature, etc.). ATIS continuously broadcast tape-recorded voice transmissions of weather information and airport operations information (approaches and runways in use, etc.). These are two typical types of "advisory communications". Another advisory service which is to be implemented is "Flight Information Services (FIS)."

The frequencies in the 136-137 MHz band are currently not widely used. This is mainly a result of lack of aviation equipage with radios which can tune to this band segment. Future radios, in particular new digital radios currently being implemented, will resolve this issue. In addition, because this band is used very little at present, it is an ideal beginning of a "subband" to be used for transition to the new digital air traffic control communications system (VDL Mode 3).

III. Regulatory Policies

To promote compatibility, flexibility, and efficiency while transition to the future digital air/ground communications system is progressing, the FAA believes that the 136-137 MHz band segment should be used only for digital communications systems using ICAO standards for VHF digital links (VDL as defined by ICAO Annex 10) or be demonstrated to be compatible with those standards. General aviation will receive benefits from this approach due to "freeing up" of radio frequencies below 136 MHz where most general aviation radios operate.

The current allocation table for the 136-137 MHz band (47CFR Part 2) would need to be modified as follows:

INTERNATIONAL			UNITED STATES			
Region 1 MHz	Region 2 MHz	Region 3 MHz	Band MHz	Government Allocation	Non-Government Allocation	Remarks
136-137 AERONAUTICAL MOBILE (R) Fixed Mobile except aeronautical mobile (R) 591 594A 595			136-137	AERONAUTICAL MOBILE (R) US 244 591	AERONAUTICAL MOBILE (R) US244 591	

Consequential to this change, footnote US244 will need to be modified as follows:

The band 136-137 MHz is allocated to the aeronautical mobile (R) service on a primary basis, and is subject to pertinent international treaties and agreements. These frequencies are available for the requirements of civil aviation using digital technology as defined by ICAO Annex 10. The frequency 136.525, 136.625, 136.725, and 136.825 are reserved for the needs of the Flight Information Service. The frequencies 136.900, 136.925, 136.950, and 136.975 MHz are reserved for the needs of aeronautical operational control (AOC) data link using digital technology as defined by ICAO Annex 10 (VDL Mode 2). Existing operational meteorological satellites may continue to operate, on a not-to-interfere basis to aeronautical mobile (R) stations, until 1 January 2002. No new frequency assignments are authorized to stations in the meteorological-satellite service.

The FAA proposes the following channeling plan for this band:

Frequency	Function	Usage
136.000 MHz	ATC	VDL Mode 3
136.025 MHz	ATC	VDL Mode 3
136.050 MHz	ATC	VDL Mode 3
136.075 MHz	ATC	VDL Mode 3
136.100 MHz	ATC	VDL Mode 3
136.125 MHz	ATC	VDL Mode 3
136.150 MHz	ATC	VDL Mode 3
136.175 MHz	ATC	VDL Mode 3
136.200 MHz	ATC	VDL Mode 3
136.225 MHz	ATC	VDL Mode 3
136.250 MHz	ATC	VDL Mode 3
136.275 MHz	ATC	VDL Mode 3
136.300 MHz	ATC	VDL Mode 3
136.325 MHz	ATC	VDL Mode 3
136.350 MHz	ATC	VDL Mode 3
136.375 MHz	ATC	VDL Mode 3

136.400 MHz	ATC	VDL Mode 3
136.425 MHz	ATC	VDL Mode 3
136.450 MHz	ATC	VDL Mode 3
136.475 MHz	ATC	VDL Mode 3
136.500 MHz	AOC	VDL Mode 2
136.525 MHz	ATC	FIS
136.550 MHz	AOC	VDL Mode 2
136.575 MHz	AOC	VDL Mode 2
136.600 MHz	AOC	VDL Mode 2
136.625 MHz	ATC	FIS
136.650 MHz	AOC	VDL Mode 2
136.675 MHz	AOC	VDL Mode 2
136.700 MHz	AOC	VDL Mode 2
136.725 MHz	ATC	FIS
136.750 MHz	AOC	VDL Mode 2
136.775 MHz	AOC	VDL Mode 2
136.800 MHz	AOC	VDL Mode 2
136.825 MHz	ATC	FIS
136.850 MHz	AOC	VDL Mode 2
136.875 MHz	AOC	VDL Mode 2
136.900 MHz	AOC	VDL Mode 2
136.925 MHz	AOC	VDL Mode 2
136.950 MHz	AOC	VDL Mode 2
136.975 MHz	AOC	VDL Mode 2

When preparing this table, it was taken into account that 122.825, 122.875, and 128.825 through 132.000 MHz will remain allocated for domestic VHF requirements.

The above and other consequential changes will need to be made to complete this rulemaking.

IV. Industry and FAA Support

The FAA has made an investment decision to begin implementation of the digital VDL Mode 3 as the future air/ground communications system operating in the 118-137 MHz AM(R)S spectrum. Implementation is to begin by 2002. The FAA Administrator has also adopted an FIS policy statement which seeks to implement an FIS system in the 136-137 MHz segment of this band which will provide enhanced weather and advisory information to pilots.

The aviation industry, avionics manufacturers, and Federal Government agencies fully participated, within the RTCA advisory committee forum, in the alternatives analysis and system design for VDL Mode 3. These organizations also participated in the activities leading up to the FAA investment decision and fully supported the implementation of VDL Mode 3 at the FAA Joint Resources Council.

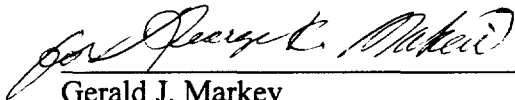
V. Proposed Rules

We request such modifications of Parts 2 and 87 of the Commission's Rules and Regulations as described above and any other consequential changes which are necessary to accomplish the actions outlined above.

This petition also supports the Small Aircraft Manufacturers Association (SAMA) petition for implementation of Flight Information Services which was filed with the FCC on September 14, 1998.

The Commission's action making the proposed amendments of its rules is necessary for the FAA to proceed with both the future air/ground communications program and the Flight Information Services program. Prompt action is requested to meet the aggressive schedules for these programs, and expedited conclusion of this petition is requested by December 31, 1998.

Respectfully Submitted,



Gerald J. Markey
Program Director, Spectrum Policy and Management
Federal Aviation Administration
800 Independence Ave., SW
Washington, DC 20591
(202) 267-9738